

# A Review of the Georgia Diesel Particulate Emission Reduction Technology Equipment Tax Credit

Prepared for the Senate Study Committee on Special Tax Exemption  
By the Fiscal Research Center, Georgia State University  
December 2017

## Summary of Policy

The diesel particulate emission reduction technology equipment tax credit applies to the purchase and installation of diesel particulate emission reduction technology on commercial vehicles for the purpose of reducing diesel emissions (O.C.C.A. 48-7-40.19). The credit is administered by the Georgia Department of Revenue (DOR) and became effective on January 1, 2001.

## Findings

Based on data provided by DOR taxpayers have claimed the credit since 2012. According to information provided by officials at the Georgia Regional Transportation Authority (GRTA)<sup>1</sup>, no requests have been made to certify technologies as meeting the statutory definition of diesel particulate emission reduction technology equipment, and officials at GRTA believe the credit is virtually unknown to taxpayers. GRTA is in the process of developing standards to proactively identify technology eligible for the credit.<sup>2</sup>

## Evaluation Criteria

Measure	Score
Justification	+
Effectiveness	-
Efficiency	N/A
Equity	-/+
Return on Investment	-
Credit Structure and Administration	-
Budgetary Risk	-/+
Local Government Impact	+
Opportunity Costs	+

## Suggested Policy Recommendations

- Further research should be conducted on the best manner to achieve the goal of reduced diesel emissions because there are several potential methods of achieving this goal.
- The state should establish standards of qualifying equipment. According to officials at GRTA, no requests have been made to certify particular technologies as meeting the

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<sup>1</sup> GRTA is responsible for designating technology which qualifies for the credit.

<sup>2</sup> Rob Goodwin of GRTA, email message to the author, November 9, 2017.

statutory definition of diesel emission reduction technology. GRTA is in the process of developing standards to proactively identify technology eligible for the credit.<sup>3</sup>

- The state should consider including the Georgia Department of Natural Resources in the administration of this credit.
- The state should may wish to consider converting this program to a grant program with an annual budget appropriation.

## **Introduction**

The purpose of this report is to review the diesel particulate emission reduction technology equipment tax credit as part of the work of the 2017 Senate Study Committee on Special Tax Exemption, chaired by Senator John Albers. The committee met several times during the summer and fall of 2017 to discuss the process of evaluating tax incentives. This is one of five reviews produced by the Fiscal Research Center in support of this committee.

Although not explicitly stated, this review assumes that the purpose of the tax incentive is to stimulate the purchase and use of technologies to reduce diesel emissions. A reduction in diesel emissions will improve air quality and provide improved health outcomes for Georgia residents. Because these benefits are not completely borne by the taxpayer installing and using the reduction equipment, there may be an underinvestment in these projects in the absence of government intervention. Therefore, providing the credit serves to address this underinvestment.

There are many measures by which a tax incentive may be evaluated, but perhaps the most common is the return on investment. That is, an incentive is deemed successful if it provides a positive net return on investment or, stated differently, if the tax dollars generated from the activity exceed the cost of the tax incentive. While this is an important consideration, it may not be the only measure by which incentives should be judged. For instance, incentives that seek to alter behavior may not result in the generation of additional tax revenues but may still be beneficial to society. Because state administration and budgeting concerns are also important factors, the program is measured against several criteria. The criteria used in this evaluation were originally developed by Murray and Bruce (2017) and adapted for use by the committee.

The report continues as follows: Section 1 describes the tax credit and discusses other incentives that are typically used in combination with the state tax credit. Section 2 presents information on the utilization of the tax credit. Section 3 provides several examples of Georgia projects that may be used to reduce diesel emissions. Section 4 concludes with the set of criteria by which the credit is measured, followed by recommendations for the improvement and continuation of the program.

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<sup>3</sup> Ibid.

## **Section 1. About the Credit**

### *Credit Structure*

The diesel particulate emission reduction technology equipment tax credit is equal to 10 percent of the cost of purchasing and installing diesel particulate emission reduction technology, and can be applied only in the year in which the equipment is first used. The credit can be applied against the Georgia state income tax. No carryforwards for this credit are allowed. The credit became effective on January 1, 2001.

### *Credit Administration*

To receive the credit, a taxpayer must attach a schedule to their income tax return with a description of the technology installed, the location of the installed equipment, and the cost of the equipment and installation. The credit is administered by the Department of Revenue.

The standard for qualifying equipment is set by the Georgia Regional Transportation Authority (GRTA). At this time, no information was found on the GRTA website about the credit or qualifying equipment, and no rules for the administration of this tax credit were found on the Georgia Secretary of State's website. According to GRTA, no requests have been made to certify particular technologies as meeting the statutory definition of diesel emission reduction technology, and officials at GRTA believe the credit is virtually unknown to taxpayers. GRTA is in the process of developing standards to proactively identify technology eligible for the credit.<sup>4</sup>

### *Interactions with Other State and Federal Incentives*

The state also offers a tax credit for the purchase of alternative fuel heavy-duty and medium-duty vehicles which also serves the purpose of reducing emissions. This credit applies in fiscal years 2016 and 2017 and can be used against the income tax liability of any taxpayer who purchases an alternative-fuel heavy-duty or alternative-fuel medium-duty vehicle.<sup>5</sup> In addition, Georgia's idle reduction weight exemption allows any vehicle that exceeds the state gross, axle and tandem weight limits by up to 400 pounds to be exempt if the vehicle has idle reduction technology.<sup>6</sup> This provision accounts for the added weight of the diesel emission reduction technology.

There also exists a federal excise tax exemption for the purchase of on-board idle reduction technology and a federal weight exemption for idle reduction technology of 550 pounds.<sup>7</sup> Furthermore, the Department of Energy, the Department of Transportation and the Environmental Protection Agency offer grant programs to support the use of idle reduction technology.

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<sup>4</sup> Rob Goodwin, email message to the author, November 9, 2017.

<sup>5</sup> O.C.G.A. §§ 48-7-29.18, 48-7-29.19

<sup>6</sup> O.C.G.A. § 32-6-27

<sup>7</sup> "Federal and State Laws and Incentives," Alternative Fuels Data Center, U.S. Department of Energy, updated May 5, 2017, <https://www.afdc.energy.gov/laws>.

### *Incentives from Other States*

Our research identified 32 states with a weight exemption for vehicles with idle-reduction technology. Thirteen states offer grants or loans for pollution-reduction projects, including the installation of idle-reduction technologies. Some of these states offer more than one grant or loan program. Based on our research, only Georgia and Colorado offer a tax credit for this equipment.<sup>8</sup>

### **Section 2. Use of the Credit**

From 2011 to 2012, the amount of credit used was \$8,132.<sup>9</sup> According to data provided by the Georgia DOR, no taxpayers have claimed this credit since 2012.<sup>10</sup>

### **Section 3. Examples of Emission Reduction Technology**

Diesel particulate emission reduction technology, in general, is a system which provides heat, air conditioning, light, and communications for the driver's compartment of a commercial motor vehicle when parked at a truck stop, depot, or other facility.

When long-haul trucks stop overnight or for legally required breaks, drivers often idle their engines to provide heating, air conditioning and light to the cabin, or to power electric devices such as refrigerators or televisions. Truck idling is estimated to consume about 838 million gallons of fuel per year. Diesel fuel emits particulate matter, which has been linked to respiratory damage and premature death.<sup>11</sup> Argonne National Laboratory estimates that idling overnight and during breaks results in 400 tons of emitted particulate matter each year nationwide, which has an adverse effect on climate change, local air quality and the health of the drivers.<sup>12</sup> In Georgia there are approximately 43,375 trucks on the road each year.<sup>13</sup> Because of the strong growth in the Georgia economy, the number of trucks on our roadways is likely to increase in the coming years.

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<sup>8</sup> Ibid.

<sup>9</sup> Data from the Georgia Department of Revenue based on returns processed as of 6-19-2017.

<sup>10</sup> Ibid.

<sup>11</sup> Governor's Energy Policy Council, Division of Energy Resources of the Georgia Environmental Facilities Authority, *State Energy Strategy for Georgia* (Atlanta, 2006), 62.

<sup>12</sup> U.S. Department of Energy, Vehicle Technologies Office, *Long-Haul Truck Idling Burns Up Profits* (Washington D.C., 2015).

<sup>13</sup> Stacy Allman of Georgia Department of Natural Resources, email message to the author, November 1, 2017.

### *Truck Stop Electrification (TSE)*

TSE reduces the amount of particulate matter in the air by providing electricity to resting truck drivers at truck stops and depots. A collaboration between North Carolina, South Carolina and Georgia installed TSE stations along the I-85 corridor.<sup>14</sup> Based on the latest data provided by the U.S. Department of Energy, Alternative Fuels Data Center, there are five stations in Georgia with a combined 127 electrified parking spaces.

There are two types of electrified parking space (EPS) systems available. Single-system electrification provides HVAC directly to the truck via a duct that feeds into the driver's window (Figure 1). With this system, the owner of the truck stop provides virtually all the system infrastructure.<sup>15</sup> Dual-system electrification, also referred to as shore-power, plugs into a truck's onboard HVAC system and accessories (Figure 2). With this system, truck cabs are powered via a power pedestal. Under this arrangement, the truck stop operator provides the power pedestals, but the truck driver must have an electricity converter, an onboard HVAC unit, and hardware to plug into the power pedestal. In both cases, there is typically a charge for use of the system.

**Figure 1. Single system**



**Figure 2. Dual System**

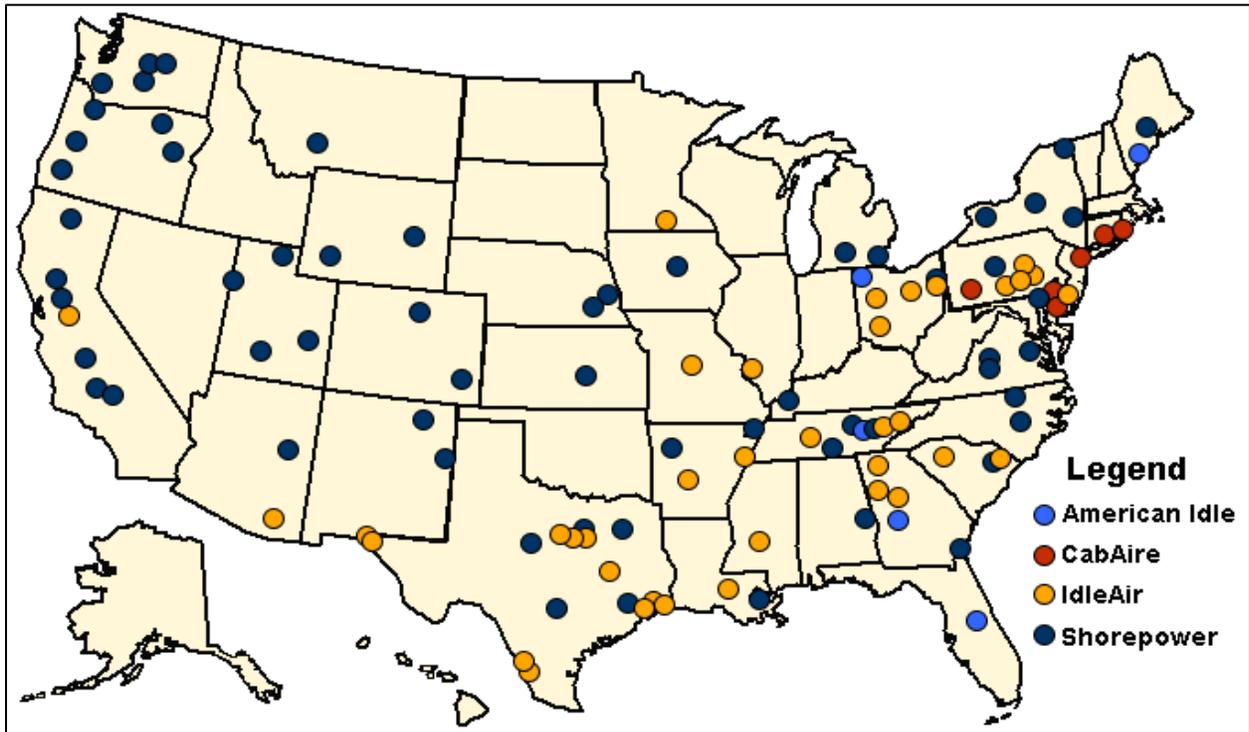


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<sup>14</sup> Governor's Energy Policy Council, Division of Energy Resources of the Georgia Environmental Facilities Authority, *State Energy Strategy for Georgia* (Atlanta, 2006), 62.

<sup>15</sup> A small window adapter is required for use with this system. This is inexpensive and typically provided by the truck driver.

**Figure 3. Truck stop electrification sites by company and location, as of March 30, 2017**



Source: U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy.

#### **Section 4. Evaluation of the Diesel Particulate Emission Reduction Technology Equipment Credit**

##### *Justification*

It is assumed that the purpose of the credit is to reduce diesel emissions resulting in improved air quality. The benefits of the improved air quality are not limited to those purchasing the emission technology. A fundamental economic principle states that under this situation an underinvestment of the air improvement equipment by the private sector will occur and that government subsidies are required to increase the investment to the appropriate level.

It is not obvious why this program should be solely subsidized at the state level as the gains from clean air are felt by residents of other states as well as Georgia. Because the gains are not limited to Georgia residents, the program should be operated at the primarily at federal level.

Lastly, there is no obvious reason why this program should be run through the tax system. It may be more appropriate to administer this program via an annual appropriation in the budget. Because the program is run as an income tax credit and unused credits cannot be carried forward, only individuals with tax liabilities in excess of the credit will be able to use the credit.

### *Effectiveness*

The credit seems to be ineffective because its use is minimal. This may be due to a lack of certified technologies, a lack of knowledge of the credit, or because the credit is not needed because other methods of reducing emissions are being used by drivers.

### *Efficiency*

Without additional clarification on the type of equipment or technology eligible for the credit, it is not possible to evaluate the credit on the basis of efficiency.

### *Equity*

Usage of the credit will be limited to those individuals who own a truck or those who operate a truck stop. The credit language does not preclude any geographic region of the state. While not targeted to any income level, it is more likely that the credit will be more attractive to those with higher levels of income since unused credits cannot be carried forward.

### *Return on Investment*

Because much of the benefit will be in the form of improved air quality, the return on investment will be widely dispersed among residents of Georgia and other states and will consequently be very difficult to measure.

### *Credit Structure and Administration*

The credit has no annual cap on utilization but does not allow carryforwards of unused credits. In addition, it seems a departure from the norm that the Georgia Department of Natural Resources (DNR) is not involved in the administration of this credit, as this department has a history of administering tax credits for the purpose of improving air quality. For instance, DNR is currently involved in the administration of the heavy- and medium-alternative fuel vehicle tax credit and was involved in the administration of the low- and zero-emission vehicle tax credit.

### *Budgetary Risk*

Because utilization is minimal, there has been very little risk to the budget. But the lack of an annual cap represents a risk to the budget if utilization increases.

### *Local Government Impact*

We found no indication of a local impact from this policy.

### *Opportunity Costs*

At this point, the state has experienced very little opportunity cost because minimal funds have been used for this purpose. If, in the future, more credits are taken against this credit, the opportunity cost to the state will increase because there will be a greater reduction in state revenues that can be used for other purposes.

## **Suggested Policy Recommendations**

- Further research should be conducted on the best manner to achieve the goal of reduced diesel emissions because there are several potential methods of achieving this goal.
- The state should establish standards of qualifying equipment. According to GRTA, no requests have been made to certify particular technologies as meeting the statutory definition of diesel emission reduction technology, and they believe the credit is virtually unknown to taxpayers. GRTA is in the process of developing standards to proactively identify technology eligible for the credit.<sup>16</sup>
- The state should consider including the Georgia Department of Natural Resources in the administration of this credit.
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<sup>16</sup> Rob Goodwin, email message to the author, November 9, 2017.